CURRICULUM VITAE

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Education and Training

1993 – 1997	B.S. Neuroscience, University of Pittsburgh, Pennsylvania. Undergraduate thesis: Genetic influence in an animal model of anorexia nervosa.
1997 – 2003	Ph.D. Neuroscience Program, Uniformed Services University of the Health Sciences, Bethesda, MD. Thesis: 810nm light treatment of acute spinal cord injury alters the immune response and improves axonal regeneration and functional recovery. Dr. Juanita J. Anders – advisor.
June 2001	Quantitative RNA Techniques Course, Exon-Intron, York, PA.
2003 – 2004	Post-doctoral Fellow, Uniformed Services University of the Health Sciences, Bethesda, MD. Department of Anatomy, Physiology and Genetics. Dr. Juanita J. Anders – advisor.
2004 – 2007	Post-doctoral Fellow, Georgetown University, Washington, DC. Department of Neuroscience, Dr. Alan I. Faden – advisor.
October 2006	Applications of Unbiased Stereology to Neural Systems, 12th Annual Fall Stereology Workshop, Atlanta, GA.

Academic Positions

2007 - 2009	Research Assistant Professor, Department of Neuroscience, Georgetown University Medical Center, Washington, DC.
2009 – Present	Assistant Professor, Department of Anatomy, Physiology and Genetics, Uniformed Services University of the Health Sciences, Bethesda, MD.
2009 – Present	Adjunct Assistant Professor, Department of Neuroscience, Georgetown University Medical Center, Washington, DC.

Honors, Awards and Fellowships

1993 – 1997	University Scholars Scholarship, University of Pittsburgh
April 1999	Emma Bockman Award for Scholastic Achievement, Uniformed Services University of the Health Sciences
May 1999	Best Young Investigator Presentation, Chesapeake Society for Microscopy
April 2000	American Society for Laser Medicine and Surgery Travel Grant
2000 – 2001	Defense Veterans Head Injury Program: Neuroscience Program Graduate Student Fellowship
November 2000	Society for Neuroscience Chapter Travel Award (Potomac Chapter)
2001 – 2002	Basic Research on Brain and Spinal Cord Injury Graduate Fellowship
2001 – 2002	Association of Neuroscience Departments and Programs Training Fellowship
April 2002	American Society for Laser Medicine and Surgery Travel Grant
2002 – 2003	Henry M. Jackson Foundation Fellowship in Medical Sciences
April 2003	American Society for Laser Medicine and Surgery Travel Grant
May 2003	Uniformed Services University Graduate Student Award
September 2003	Joint International Laser Conference Travel Grant
March 2005	J. Stephen Fink, MD PhD American Society for Experimental NeuroTherapeutics (ASENT) Fellow
April 2005	American Society for Laser Medicine and Surgery Travel Grant
November, 2005	National Neurotrauma Society Travel Grant Awardee
March 2007	J. Stephen Fink, MD PhD American Society for Experimental NeuroTherapeutics (ASENT) Fellow

December 2009	Oral Presentation Award for Outstanding Research, Functional Genomics Research Meeting 7

Committee Assignments and Administrative Experience

1998 – 2001	Uniformed Services University Library Committee
2000 – 2001	Science's NextWave Campus Representative
2000 – 2003	Founder and Chair, Neuroscience Program Graduate Student Lunchtime Meetings and Workshop Series
April 2001	Founder and Co-Chair, Graduate Student Career Development Workshop
2001	Outstanding Biomedical Educator Award Committee
2001 – 2002	Graduate Student Representative, Uniformed Services University of the Health Sciences
2001 – 2005	Website Design and Maintenance Committee, Women in Neuroscience (WIN); Interim Webmaster 10/2001 – 2002
2001 – 2005	Website Design and Maintenance Committee, International Academy of Laser Medicine and Surgery
2002 – present	Peer Reviewer, Lasers in Surgery and Medicine
2003 – 2005	Junior Councilor, WIN
May 2003	Organizer and Chair, Graduate Student Career Development Workshop
2003 – 2005	Newsletter Editor, WIN
2004 – 2005	Vice-Chair, Georgetown University Post-Doctoral Association
2004 – 2007	Society for Neuroscience Committee on Women in Neuroscience
2006 – present	Peer Reviewer, Brain Research
2006 – present	Peer Reviewer, Nature Protocols

November, 2008	Chair, Society for Neuroscience Workshop: "Time Management: Combining Family and Neuroscience". 2008 Society for Neuroscience Conference
2009 – present	Chair, Department of Neuroscience Career Development Discussion Group
January 2010	Department of Defense Congressionally Directed Medical Research Programs: Spinal Cord Injury Research Program Peer Review Panel
2010 – present	Editorial Board, Frontiers in Neurodegenerative Diseases

Assignment and Employment Record

1995 – 1997	Undergraduate Research Assistant, Department of Eating Disorders, University of Pittsburgh Medical Center
1997	Center Coordinator, Department of Eating Disorders, University of Pittsburgh Medical Center
1999 – 2001	Consultant, Department of Laboratory Animal Medicine, Uniformed Services University of the Health Sciences
1999 – 2002	PageMaster, Neuroscience Program, Uniformed Services University of the Health Sciences.
2000 – 2002	PageMaster, Department of Anatomy, Physiology and Genetics, Uniformed Services University of the Health Sciences.

Professional Affiliations

American Society for Laser Medicine and Surgery
Golden Key National Honor Society
International Academy for Lasers in Medicine and Surgery
Society for Neuroscience

Teaching Experience

1998 – 1999	Graduate Teaching Assistant, Head and Neck Gross Anatomy Course, Department of Anatomy and Cell Biology, Uniformed Services University of the Health Sciences

1998 – 1999	Neuroscience Workshop Presentation: National Youth Foundation. Uniformed Services University of the Health Sciences
2002	Implementation of Teaching Course for Graduate Students
2002	Implementation of Grant Writing Course for Graduate Students
2002	Graduate Teaching Assistant, Grant Writing for Graduate Students
June 2003	Lecturer; Grant Writing for Graduate Students
March 2008	Lecturer; Stroke and Trauma course for IPN Graduate Students, Georgetown University
April 2008	Teaching Assistant; Laboratory Course; Medical Neuroanatomy, Georgetown University
April 2009	Instructor; Laboratory Course; Medical Neuroanatomy, Georgetown University
2010	Laboratory Instructor, Structure and Function of Organ Systems, Uniformed Services University of the Health Sciences

Funded Grants

1999 – 2000	American Society for Laser Surgery and Medicine Summer Research Grant. "Comparison of Two Low Power Laser Parameters in the Treatment of Acute Corticospinal Tract Lesion in Adult Rats"
1999 – 2000	Uniformed Services University of the Health Sciences Graduate Student Dissertation Grant. "Characterization of Diabetic Neuropathy in an Animal Model of Type II Diabetes, *Psammomys obesus*"
2000 – 2001	Uniformed Services University of the Health Sciences Graduate Student Dissertation Grant. "Treatment of Acute Corticospinal Tract Lesion in Adult Rats with Low Power Laser Irradiation"
2001 – 2002	American Society for Laser Surgery and Medicine Summer Research Grant. "Low Power Laser Irradiation Treatment of Acute Spinal Cord Injury"
2008 – 2009	National Capital Area Rehabilitation Research Network – Pilot Project. "Attenuation of chronic microglial related inflammation

to improve rehabilitation after spinal cord injury". $25,000; 1 year.

2010 – 2011 Center for Neuroscience and Regenerative Medicine. "The impact of repetitive mild TBI based on a closed head injury model and serial FDG-microPET". $276,729; 1 year.

Publications

Refereed Journals

1. Snyder SK, Byrnes KR, Borke RC, Sanchez A, Anders JJ. Quantitation of calcitonin gene-related peptide mRNA and neuronal cell death in facial motor nuclei following axotomy and 633 nm low power laser treatment. Lasers Surg Med. 2002;31(3):216-22.

2. Ilev IK, Waynant RW, Byrnes KR, Anders JJ. Dual-confocal fiber-optic method for absolute measurement of refractive index and thickness of optically transparent media. Opt Lett. 2002;27(19):1693-5.

3. Ilev IK, Waynant RW, Byrnes KR, Anders JJ. On-off laser delivery into a precise tissue area using smart tissue-activated fiber probes. IEEE Journal of Selected Topics of Quantum Electronics. 2003;9(2):331-336.

4. Byrnes KR, Barna L, Chenault VM, Waynant RW, Ilev IK, Longo L, Miracco C, Johnson B, Anders JJ. Photobiomodulation improves cutaneous wound healing in an animal model of type II diabetes. Photomed Laser Surg. 2004;22(4):281-90.

5. Byrnes KR, Waynant RW, Ilev IK, Wu X, Barna L, Smith K, Heckert R, Gerst H, Anders JJ. Light promotes regeneration and functional recovery and alters the immune response after spinal cord injury. Lasers Surg Med. 2005;36(3):171-85.

6. Byrnes KR, Wu X, Waynant RW, Ilev IK, Anders JJ. Low power laser irradiation alters gene expression of olfactory ensheathing cells in vitro. Lasers Surg Med. 2005;37(2):161-71.

7. Cernak I, Stoica B, Byrnes KR, Di Giovanni S, Faden AI. Role of the cell cycle in the pathobiology of central nervous system trauma. Cell Cycle. 2005 Sep;4(9):1286-93.

8. Byrnes KR, Garay J, Di Giovanni S, De Biase A, Knoblach SM, Hoffman EP, Movsesyan V, Faden AI. Expression of two temporally distinct microglia-related gene clusters after spinal cord injury. Glia. 2006 Mar;53(4):420-33.

9. Byrnes KR, Faden AI. Role of cell cycle proteins in CNS injury. Neurochem Res. 2007 Oct;32(10):1799-807.

10. Byrnes KR, Stoica BA, Fricke S, Di Giovanni S, Faden AI. Cell cycle activation contributes to post-mitotic cell death and secondary damage after spinal cord injury. Brain. 2007 Nov;130(Pt 11):2977-92.

11. Hilton GD, Stoica BA, Byrnes KR, Faden AI. Roscovitine reduces neuronal loss, glial activation, and neurologic deficits after brain trauma. J Cereb Blood Flow Metab. 2008 Nov;28(11):1845-59.

12. Byrnes KR, Stoica B, Loane DJ, Riccio A, Davis MI, Faden AI. Metabotropic glutamate receptor 5 activation inhibits microglial associated inflammation and neurotoxicity. Glia. 2009;57:550-560.

13. Byrnes KR, Loane DJ, Faden AI. Metabotropic glutamate receptors as targets for pluripotential treatment of neurological disorders. Neurotherapeutics. 2009; 6:94-107.

14. Stoica BA, Byrnes KR, Faden AI. Multifunctional drug treatment in neurotrauma. Neurotherapeutics. 2009;6:14-27.

15. Stoica BA, Byrnes KR, Faden AI. Cell cycle activation and CNS injury. Neurotox Res. 2009 Oct;16(3):221-37.

16. Byrnes KR, Stoica BA, Riccio A, Pajoohesh-Ganji A, Loane DJ, Faden AI. Activation of mGluR5 reduces inflammation and improves recovery after spinal cord injury. Annals of Neurology. 2009;66(1):63-74.

17. Loane DJ, Stoica BA, Pajoohesh-Ganji A, Byrnes KR, Faden AI. Activation of metabotropic glutamate receptor 5 modulates microglial reactivity and neurotoxicity by inhibiting NADPH oxidase. J Biol Chem. 2009;284(23):15629-39.

18. Pajoohesh-Ganji A, Byrnes KR, Fatemi G, Faden AI. A combined scoring method to assess behavioral recovery after mouse spinal cord injury. J Neurosci Res. 2010; In Press.

19. Byrnes KR, Fricke ST, Faden AI. Neuropathological differences between rats and mice after spinal cord injury. J Magn Res Imag. 2010; In Press.

20. Loane DJ, Byrnes KR. Role of microglial activation in neurotrauma. Neurotherapeutics. 2010; In Press.

21. Byrnes KR, Washington P, Knoblach SM, Hoffman E, Faden AI. Delayed microglial mRNA and protein expression after spinal cord injury. Glia. 2010; Submitted

Published Abstracts

1. Byrnes KR, Clarke T, Chenault VM, Waynant R, Anders JJ. Low power laser treatment of cutaneous wounds in *Psammomys obesus*. Lasers Surg Med S12:4;2000.

2. Byrnes KR, Waynant RW, Ilev IK, Venuti G, Anders JJ. Low power laser irradiation promotes axonal growth in an animal model of acute spinal cord injury. Society for Neuroscience Abstract 26(1):304;2000.

3. Byrnes KR, Waynant RW, Ilev IK, Anders JJ. Cellular invasion following spinal cord lesion and low power laser irradiation. Lasers Surg Med S14:11;2002.

4. Anders JJ, Byrnes KR, Barna L, Chenault VM, Longo L, Miracco C. FGF expression increases with low power laser irradiation during healing of cutaneous wounds in normal and diabetic *Psammomys obesus*. Lasers Surg Med S14:12:2002.

5. Byrnes KR, Waynant RW, Ilev IK, Johnson B, Pollard H, Srivastava M, Eidelman O, Huang W, Anders JJ. Genomic analysis of spinal cord following injury and photo-biomodulation. Lasers Med Sci 17(4):A28;2002.

6. Byrnes KR, Wu X, Waynant RW, Ilev IK, Van Horn A, Anders JJ. Light therapy promotes axonal regeneration after acute spinal cord injury in adult rats. Program No. 275.2. 2003 Abstract Viewer/Itinerary Planner. Washington DC: Society for Neuroscience.

7. Byrnes KR, Wu X, Waynant RW, Ileve IK, Anders JJ. Low power laser irradiation alters gene expression of olfactory ensheathing cells in vitro. Laser Surg Med 36(S17)54;2005.

8. Byrnes KR, Wu X, Waynant RW, Ilev IK, Anders JJ. Light therapy alone and in combination with olfactory ensheathing cell transplantation promote functional recovery after acute spinal cord injury. Program No. 184.9. 2004 Abstract Viewer/Itinerary Planner. Washington DC: Society for Neuroscience, 2004. Online.

9. Byrnes KR, Garay J, Di Giovanni S, De Biase A, Knoblach SM, Hoffman E, Movseysan V, Faden AI. Microglial induced inflammation after spinal cord injury. Program No. 671.5. 2005 Abstract Viewer/Itinerary Planner. Washington DC: Society for Neuroscience 2005. Online.

10. Byrnes KR, Stoica B, Faden AI. Metabotropic glutamate receptor 5 modulates microglial activity and provides neuroprotection. Neurotherapeutics; October 2007 (Vol. 4, Issue 4, Page 726).

Invited Publications

1. Byrnes K. ANDP Fellows: Changing Graduate Education Policy in Neuroscience Programs. Science's NextWave (http://sciencecareers.sciencemag.org/career_development/previous_issues/articles/1820/changing_graduate_education_policy/). 16 Aug 2002.

Invited Presentations

1. Byrnes KR, Waynant RW, Ilev IK, Johnson B, Pollard H, Srivastava M, Eidelman O, Huang W, Anders JJ. Alteration in gene expression following spinal cord injury and photo-biomodulation. Presented at American Society for Laser Medicine and Surgery Meeting. Anaheim, CA. April 2003

2. Byrnes KR. 810 nm light treatment of acute spinal cord injury alters the immune response and improves axonal regeneration and functional recovery. Laboratory of Investigative and Medical Biophysics Seminar Series, NIH. October 2003.

3. Byrnes KR. Diode lasers: Use in treatment of spinal cord injury and alteration of immune response. Diode Laser Workshop, American Society for Lasers in Surgery and Medicine Annual Meeting. Dallas, TX. April, 2004. Invited Platform Presentation.